



HUNTSVILLE

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**REDSTONE GATEWAY EXTENSION, MARKET STREET AND
OVERLOOK ROAD RELOCATION PACKAGE 1F-4 – LANDSCAPING
AND IRRIGATION**
Project No. 65-11-SP22
April 23, 2012

Addendum #3

All addenda and attachments for the above- referenced project will become part of the contract documents. All addenda must be acknowledged either on the outside of the bid envelope or on the second page of the bid proposal.

CONTRACTOR QUESTIONS:

1. Q. Will addenda acknowledgement for the other contracts be required? For example, if an addenda is released for package 1F-1, will the package 1F-4 bidder need to acknowledge this on his bid form?
A. No, only the Addenda issued for Package 1F-4 need to be acknowledged on the bid form. However each bidder is responsible for reviewing the other Packages and addenda in preparing their bid.

The Star of Alabama

2. **Q.** Regarding specification section (Irrigation): Part 2.1, Item A: Indicates that all pipe ¾"-1" is to be CL200, and 1-1/4"-+ is to be CL160. However sheet LI-8 "Irrigation Equipment Legend" states main line 1-1/2" and smaller is to be SCH40 and 2" and larger CL315. Please clarify if bid should be based on sheet LI-8 legend or written specifications? See attached revised specifications for Irrigation and response below:

A. Plastic pipe:

1. Use three quarter inch (¾"), one inch (1"), and one-half inch (1-½") sizes, Schedule 40; two inch (2") and larger, Class 315 polyvinyl chloride bearing the seal of the National Sanitation Foundation, unless otherwise specified by local codes.
2. Fittings: Use Schedule 40 polyvinyl chloride, type I-II, bearing the seal of the National Sanitation Foundation, and complying with ASTM D2466.

3. **Q.** Regarding Attachment D to the proposal: Please advise if there is a specific DBE goal set for this project?

A. No minimum percentage is required, but all contractors shall engage in outreach efforts to encourage DBE/MBE/WBE participation on this project.

4. **Q.** Regarding Attachment B to the proposal: Please advise if annual color plantings shown on sheet LP-2-R1 are to be included in the base bid and provide Option 2 as a separate seasonally planting, or should annual color plantings be excluded from the base bid and provided as option 2 only?

A. Annual color plantings shown on sheet LP-2-R1 should be excluded from the base bid price and priced as Option 2.

5. **Q.** Regarding Attachment B to the proposal: Please advise if option 3 is accepted should the option 3 price include the option 1 price as well, or is each option a stand-alone number?

A. Each option should be a stand-alone number.

6. **Q.** Regarding specification section (Landscape): Part B "Source Quality Control": We have not been able to source Liquidamber styraciflua "Rotundiloba" for any of the pre-approved sources. Please advise?

A. They are now 5-1/2" to 6" and have been sourced at Green Ridge Nursery on the list.

7. **Q.** The detail of the shrub and groundcover drawing shows adding amended topsoil to a depth of 12". In the specs, it says that we need to spread amended topsoil to a depth of 6" in all planting beds. Can you please clarify which one we are supposed to use?

A. Depth shall be 12".

8. **Q.** Availability seems to be limited for the 4.5" Overcup Oaks. Approved nurseries would be able to supply total quantity of 4"-4.5" C. Would this be acceptable?

A. Yes, because the trees will be 4-1/2" by the time the trees are planted.

9. **Q.** Rotundiloba Sweetgum is not available from the approved nurseries list, but Burgundy Flush is available. Would Burgundy Flush Sweetgum be an acceptable substitute?

A. Yes; however, but the Landscape Architect reserves the right to reject the Burgundy Flush and go use the 5-1/2" to 6" from Liquidamber styraciflua "Rotundiloba" per response to Q&A# 6 above.

10. **Q.** We would like to request that Ray Bracken Nursery, Plantation Tree Farm, and Green Valley Farms be added to the approved nursery list.
A. Ray Bracken Nursery and Plantation Tree Farm are approved nurseries. However Green Valley is only an approved nursery for plants and groundcover only – no trees.
11. **Q.** The plant schedule calls for Ilex x 'Burford' (tree form), but lists Emily Bruner Holly as the common name – which holly are we to use?
A. The Landscape Architect is looking for any variety of holly that is multi-stem that matches the specifications and matches what is on site now.
12. **Q.** Where does the sidewalk in Package 1G stop and 1F-4 sidewalk begin on Sheet LH3-R1?
A. The sidewalk for Package 1F-4 on sheet LH-3-R1 starts at the crosswalk on the north end of Market Street per the attached sketch.

**Attachment: Sidewalk Limits Sketch
Revised Irrigation Specifications**

END OF ADDENDUM #3

**SECTION 02810
IRRIGATION SYSTEM**

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Work includes: Provide a shop drawing designed irrigation system as specified herein, and install, complete in place, tested and approved, including but not necessarily limited to:
 - 1. Lawn and shrub sprinkler system
 - 2. Automatic controller and remote control valves
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to: General Conditions, Supplementary Conditions, and Sections in AIA Document A107.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.03 SUBMITTALS

- A. Product data: Within thirty (30) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Shop drawing of required system to be reviewed and approved by the Landscape Architect.
 - 2. Materials list of items proposed to be provided under this Section;
 - 3. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
 - 4. Manufacturer's recommended installation procedures which, when approved by the Landscape Architect, will become the basis for accepting or rejecting actual installation procedures used for the Work.
 - 5. As-Built Drawings: Any changes in the layout and/or arrangements of the proposed irrigation system, or any other differences between the proposed system and actual installed conditions are to be recorded by the Irrigation Contractor in the form of an "As-Built" drawing. Provide the Owner and the Landscape Architect with a copy of the drawings before work under this Contract will be considered for acceptance. All isolation valve locations shall be shown with actual measurements to reference points so they may be located easily in the field.

1.04 WARRANTY

- A. Warranty all work for a period of one (1) year after date of final acceptance of the work in total, against defects in materials, equipment, workmanship and any repairs required resulting from leaks or other defects of workmanship, material or equipment.
- B. Repair unsatisfactory conditions promptly at no cost to the Owner.
- C. Emergency repairs may be made by the Owner without relieving the Irrigation Contractor of his warranty obligations.

- D. Repair settling of backfilled trenches occurring during the warranty period, including restoration of damaged plantings, paving or improvements resulting from settling of trenches or repair operations.
- E. Respond to Owner's request for repair work within ten (10) days. If not Owner may proceed with such necessary repairs at the Contractor's expense.

PART 2 - PRODUCTS

2.01 PIPE

A. Plastic pipe:

- 1. Use three quarter inch (3/4"), one inch (1"), and one-half inch (1-1/2") sizes, Schedule 40; two inch (2") and larger, Class 315 polyvinyl chloride bearing the seal of the National Sanitation Foundation, unless otherwise specified by local codes.
- 2. Fittings: Use Schedule 40 polyvinyl chloride, type I-II, bearing the seal of the National Sanitation Foundation, and complying with ASTM D2466.
- 3. Plastic pipe identification: Continuously and permanently mark with manufacturer's name, pipe size, schedule number, type of material, and code number.

B. Solvent Cement and Primer:

- 1. Solvent shall be IPS-721 or pre-approved equal.
- 2. Solvent shall be IPS-727 or pre-approved equal, When temperatures are below 40 Fahrenheit.
- 3. NOTE: In temperature below 32° Fahrenheit contractor shall not glue any pipe together.
- 4. Primer shall be IPS-70 or pre-approved equal.

2.02 Valves

A. Electric Remote Control Valves

- 1. Spray Irrigation: 100-PEB.-150-PEB-200-PEB.
- 2. The electric remote control valve shall be a normally closed 24 VAC 50/60 cycle solenoid actuated globe pattern with a balanced pressure diaphragm design. The valve pressure rating shall not be less than 200 PSI.
- 3. The valve shall have a manual open/close control (internal bleed) for manual opening and closing of valve without electrically energizing the solenoid. The valve shall have internal manual bleed to prevent flooding of the valve box. The valve shall house a fully-encapsulated, one-piece solenoid with captured plunger. The 24 VAC 50/60 Hz solenoid shall open with 19.6 VDC minimum at 200 PSI. At 24 VAC average in rush current, it shall not exceed .41 amps. Average holding current shall not exceed .23 amps.
- 4. The valve shall have a control port filter screen to filter out grit and prevent clogging of hydraulic control parts.
- 5. The valve shall have a stainless steel flow control stem and cross handle for regulating or shutting off the flow of water. The valve must open or close in less than one minute at 200 PSI and less than 30 seconds at 20 PSI.
- 6. The valve construction shall be as such as to provide for all internal parts to be removable from the top of the valve without disturbing the valve installation.
- 7. The valve shall be as manufactured by Rain Bird Sprinkler Manufacturing Corporation, Glendora, California, or an approved equal.

8. Drip Irrigation: XCZ-100-PRF only.

B. Quick coupling valves:

1. Provide specified size, one-piece construction, all brass to fit single or double lug couplers.
2. Use Schedule 80 PVC. Pipe nipples and Schedule 40 Street Ells as a three elbow swing joint to permit readjustment of valve angle.
3. Deliver to the Owner the following items, all matching the approved quick coupling valves:
 - a. coupler keys - quantities as specified
 - b. hose swivels - quantities as specified
4. Acceptable manufacturers:
 - a. Toro
 - b. Rainbird

C. Gate valve:

1. Provide one hundred and twenty-five (125) pound rated screwed valve of size required for the line.
2. Acceptable manufacturers:
 - a. Harvard
 - b. Crane; or approved equal

2.03 SPRAY HEADS

A. Sprinklers

1. Spray Head
 - a. Sprinklers to be used in beds will be 1812-SAM-PRS-45.
 - b. Sprinklers to be installed in turf will be 1806-SAM-PRS-45.
2. Nozzles shall be MPR Plastic
3. Drip tube shall be LD-09-12-500 only.
4. Rotors
 - a. Small turf areas shall be 3504-PC-SAM-PRS
 - b. Larger turf areas shall be 5006-PL-PC-SAM-PRS.

2.04 Rain Gauge

A. Rain Gauge

1. W.R.C. Wireless Rain Sensor Combo
 - a. If Maxicom is in use a Rain Can must be used

2.05 Control Wire

A. Location Wire

1. Permanently mark all irrigation lines with **16 GAUGE WIRE**. Begin at the control valve and continue to the end of that line for every control valve. Also mark in the same manner beginning at the backflow vault and run in all main line trenches including any wire trenches that may be separate from the main line. When starting a new roll of wire or wire is broken, it must be repaired and covered with an econo valve box. There will be no exceptions to this stipulation.

2. Wire should be Blue in color for lateral lines and yellow for main lines.

B. Control Valve Wire Splices

1. Splices shall only be made by using 3M-DBY's; all splices will either be made in a control valve box or a 6 inch econo box **only**.

2.06 MANUAL AND AUTOMATIC VALVE SLEEVES

- A.** For manual control valve: Provide flexible plastic sleeve and four inch (4") cycloc marker.
- B.** For gate valves:
1. Provide round reinforced plastic boxes with lids, with the word "WATER" cast into the lids.
 2. Acceptable manufacturers:
 - a. Ametek

2.07 BACKFLOW PREVENTER

- A.** Contractor shall provide double check type backflow preventer.
1. Approved manufacturer: Watts #700 or approved equal.

2.08 OTHER MATERIALS

- A.** Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor subject to prior approval of the Landscape Architect.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A.** Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FIELD MEASUREMENTS

- A.** Make necessary measurements in the field to ensure precise fit of items in accordance with the approved design.

3.03 EXCAVATION, TRENCHING AND BACKFILLING

- A.** Trench, backfill, and compact in accordance with the detail on the drawings.
- B.** All excavation shall be unclassified and shall include all materials encountered.
- C.** **It shall be the responsibility of the contractor to provide suitable backfill materials.** This backfill material shall be free from the rocks, large stones and other unsuitable substances which could damage the pipe or create unusual settling problems. The minimum depth of cover over piping 6" and larger shall be 24". The minimum depth of cover over piping 4" and smaller shall be 18". Backfilling will be done in 6" layers and tamped after each layer is put in to prevent excessive settling in all lines.

- D. No cutting of existing asphalt roadways shall be allowed. Contractor shall bore any required crossing of existing roadways in an approved manner.
- E. The contractor shall exercise reasonable care to avoid causing damage to any and all underground utilities and structures.
- F. The owner shall advise the contractor of any underground utilities or structure of which he is aware. Utility locating services shall be called upon to pinpoint location of any underground utilities on site of the project by the contractor.

3.04 INSTALLATION OF PIPING

- A. General:
 - 1. Lay out the piping system in accordance with arrangement shown on the approved Shop Drawings.
 - 2. Unless otherwise indicated, comply with requirements of Uniform Plumbing Code.
- B. Piping depth: Install piping with at least the following minimum depth:
 - 1. Main lines - 18"
 - 2. Laterals - 12"
- C. Plastic pipe:
 - 1. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings:
 - a. Store under cover until ready to install.
 - b. Transport only in a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.
 - 2. Repair dented and damaged pipe by cutting out and discarding the dented or damaged section, and rejoining with a coupling.
 - 3. Center load plastic pipe with a small amount of backfill to prevent arching and whipping under pressure.
 - 4. For plastic-to-steel connections:
 - a. Work the steel connection first.
 - b. Use Teflon tape on threaded plastic-to-steel connections.
 - c. Use only light wrench pressure.

3.05 INSTALLATION OF EQUIPMENT

- A. Install manual and automatic control valves where indicated on the approved Shop Drawings and in accordance with the manufacturer's recommendations as approved by the Landscape Architect.
- B. Quick coupling valves:
 - 1. Install in lawn areas with the top flush with the finish grade, and eight inches (8") from pavements and heads.
 - 2. Install in planting areas with tops two inches (2") above grade and eight inches (8") from pavement and heads.
- C. Lawn sprinkler heads:
 - 1. All lawn areas are to be irrigated by separate zones.
 - 2. Install where indicated on the approved Shop Drawings and in accordance with the manufacturer's recommendations as approved by the Landscape Architect.
 - 3. Set heads at finished grade.

- D. Shrub spray heads:
 - 1. All shrub areas are to be irrigated by separate zones.
 - 2. Install where indicated on the approved Shop Drawings and in accordance with the manufacturer's recommendations as approved by the Landscape Architect.
 - 3. Set tops of heads to height prescribed by the Landscape Architect.

3.06 TESTING AND INSPECTING

- A. Testing: The following items should be completed after installation but before the irrigation system is covered.
 - 1. Notify Landscape Architect twenty-four (24) hours prior to pressure test.
Unless otherwise instructed, Landscape Architect shall be present at pressure test.
 - 2. Make necessary provision for thoroughly bleeding the line of air and debris.
 - 3. After valves have been installed, test live water lines for leaks at a pressure of one hundred fifty (150) psi for a period of two (2) hours, with a five (5) psi pressure loss.
 - 4. Observe lateral lines for leaks during operation.
 - 5. Provide required testing equipment and personnel.
 - 6. Repair leaks, and retest until acceptance by the Landscape Architect.
- B. Final inspection:
 - 1. Clean, adjust, and balance all systems. Verify that:
 - a. Remote control valves are properly balanced.
 - b. Heads are properly adjusted for radius and arc of coverage.
 - c. The installed system is workable, clean and efficient.

3.07 INSTRUCTIONS

- A. Attach legible, laminated legend inside each controller door, stating the areas covered by each remote control valve.
- B. After the system has been completed, inspected, and approved instruct the Owner's maintenance personnel in the operation and maintenance of the system.

END OF SECTION 02810